

What Is Claimed Is:

1. A method for identifying a quadruplex interacting molecule, which comprises:
contacting a test molecule and a signal molecule with a quadruplex nucleic acid in a system; and
detecting the signal produced by the signal molecule, wherein the signal produced by the signal molecule when the test molecule is present in the system and interacts with the quadruplex nucleic acid is different than the signal produced by the signal molecule when the test molecule is not present in the system;
whereby the test molecule is identified as a quadruplex interacting molecule when the signal detected in a system that includes the test molecule is different than the signal detected in a system that does not include the test molecule or includes a test molecule that does not interact with the quadruplex nucleic acid.
2. The method of claim 1, wherein the quadruplex DNA is attached to a solid support.
3. The method of claim 1, wherein the signal molecule is attached to a solid support.
4. The method of claim 1, wherein the signal molecule is a chromophore.
5. The method of claim 4, wherein the chromophore is a fluorophore.
6. The method of claim 5, wherein the fluorophore is N-methylmesoporphyrin.
7. The method of claim 1, wherein the signal that is detected is a fluorescent signal.
8. The method of claim 1, wherein the test molecule is an organic molecule or inorganic molecule having a molecular weight of 10,000 grams per mole or less.
9. The method of claim 1, wherein the test molecule is a polypeptide.
10. The method of claim 1, wherein the test molecule is a polypeptide linked to a phage.

11. The method of claim 1, wherein the test molecule is a polypeptide expressed by a microorganism transfected with a nucleic acid from an expression library.
12. The method of claim 1, wherein the test molecule and the signal molecule are contacted with the quadruplex nucleic acid simultaneously.
13. The method of claim 1, wherein the quadruplex nucleic acid comprises a nucleotide sequence selected from the group consisting of the nucleotide sequences set forth in Table 1 and Table 2.
14. A method for identifying a quadruplex forming nucleic acid, which comprises:
contacting a signal molecule with a test nucleic acid in a system, wherein the test nucleic acid is a genomic DNA fragment or complementary DNA fragment; and
detecting the fluorescent signal produced by the signal molecule, wherein the signal produced by the signal molecule when the test nucleic acid is present in the system and interacts with a quadruplex forming nucleic acid is different than the signal produced by the signal molecule when the test nucleic acid is not present in the system or the test nucleic acid does not form a quadruplex;
whereby the test nucleic acid is identified as a quadruplex forming nucleic acid when the signal detected in a system that includes the test nucleic acid is different than the signal detected in a system that does not include the test nucleic acid or includes a test nucleic acid that does not form a quadruplex.
15. The method of claim 14, wherein the quadruplex DNA is attached to a solid support.
16. The method of claim 14, wherein the signal molecule is attached to a solid support.
17. The method of claim 14, wherein the quadruplex nucleic acid comprises a nucleotide sequence selected from the group consisting of the nucleotide sequences set forth in Table 1 and Table 2.
18. The method of claim 14, wherein the signal molecule is N-methylmesoporphyrin.